Supplementary Information for

Trapping metallic particles using focused Bloch surface waves

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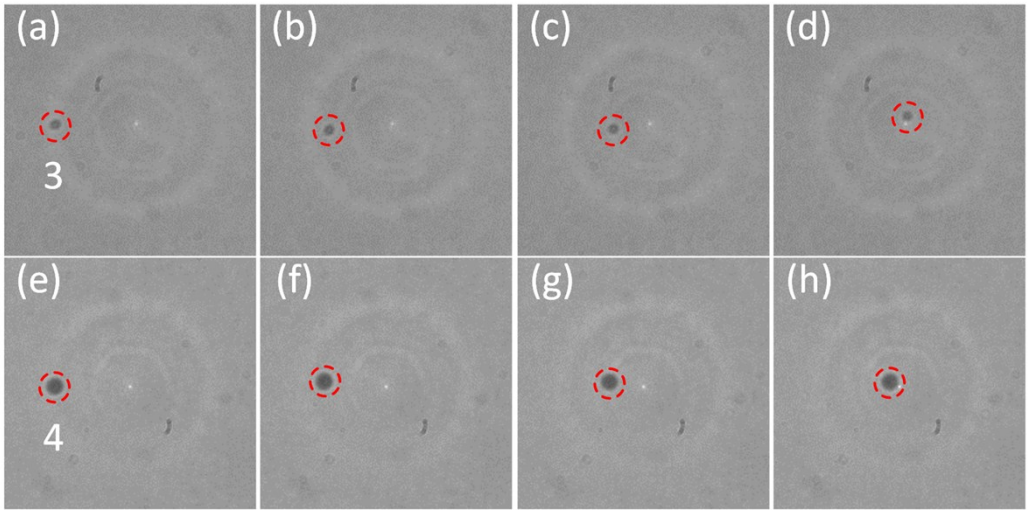

Fig. S1 Attracting gold particles of other diameters. (a–d) The diameter of gold particle 3 is in the 0.5–0.8 μm range. (e-h) The diameter of particle 4 is in the 1.5–3.0 μm range. The particles are attracted using the focused BSWs and move toward the center. The stage is not moving.

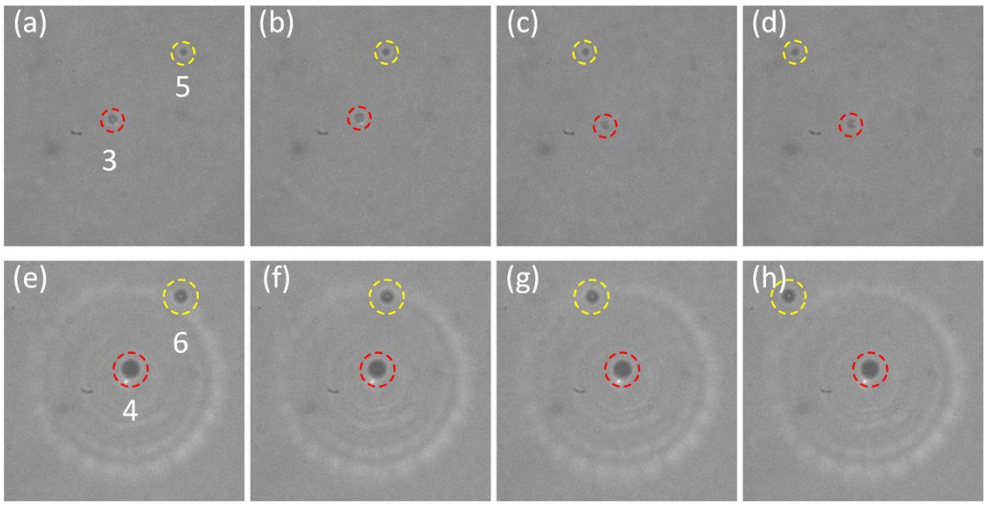

Fig. S2 Transporting gold particles of other diameters. (a–d) The diameter of the gold particle (particle 3) is in the 0.5–0.8 µm range. (e-h) The diameter of the gold particle (particle 4) is in the 1.5–3.0 µm range. The stage supporting the multilayer was moving from right to left in each case. Particles 5 and 6 were not trapped and thus moved with the stage. Particles 3 and 4 are always in the same position in the images, thus demonstrating that particles 3 and 4 were trapped and could then be transported to other locations on the multilayer.

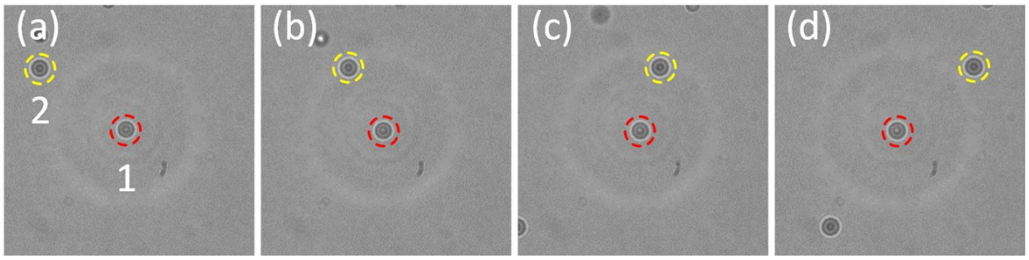

Fig. S3 Trapping and transporting a polystyrene particle with a diameter of 2 μm using the focused BSWs. (a–d) The stage supporting the multilayer is moving from left to right in each case. Particle 2 is not trapped and thus moves with the stage from left to right. Trapped particle 1 is always in the same position in the images, thus demonstrating that the dielectric particle 1 was trapped and could be transported to other places on the multilayer.

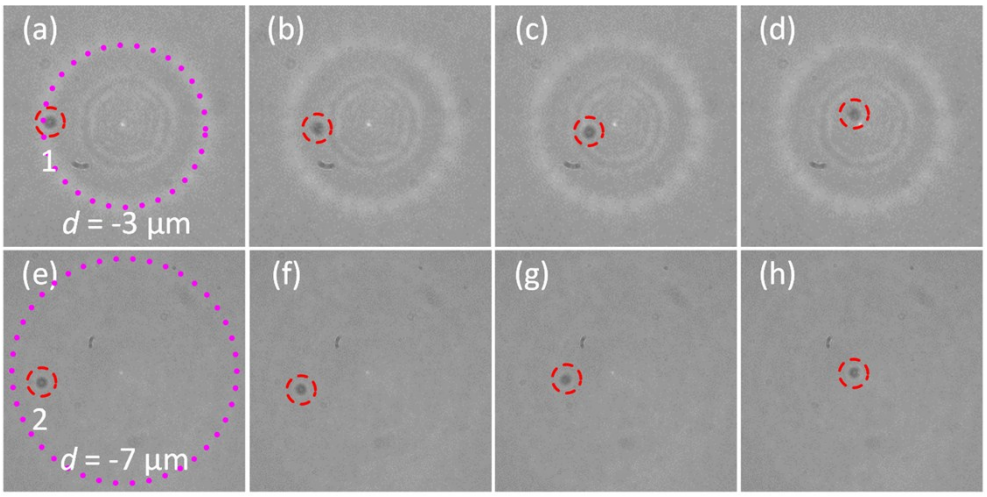

Fig. S4 Attracting gold particles with diameters of 0.8–1.5 µm using the focused BSWs at different values of d. (a–d) In this case, *d* was set at *d* = −3 µm. (e–h) In this case, d was set at *d* = −7 µm. The geometric focus of the incident ring-shaped beam was located inside the water solution, and Z is the distance between the geometric focus and the water/multilayer interface (Fig. 1(b)). Particle 1 was attracted using the focused BSWs and moved toward the center. The stage was not moving.

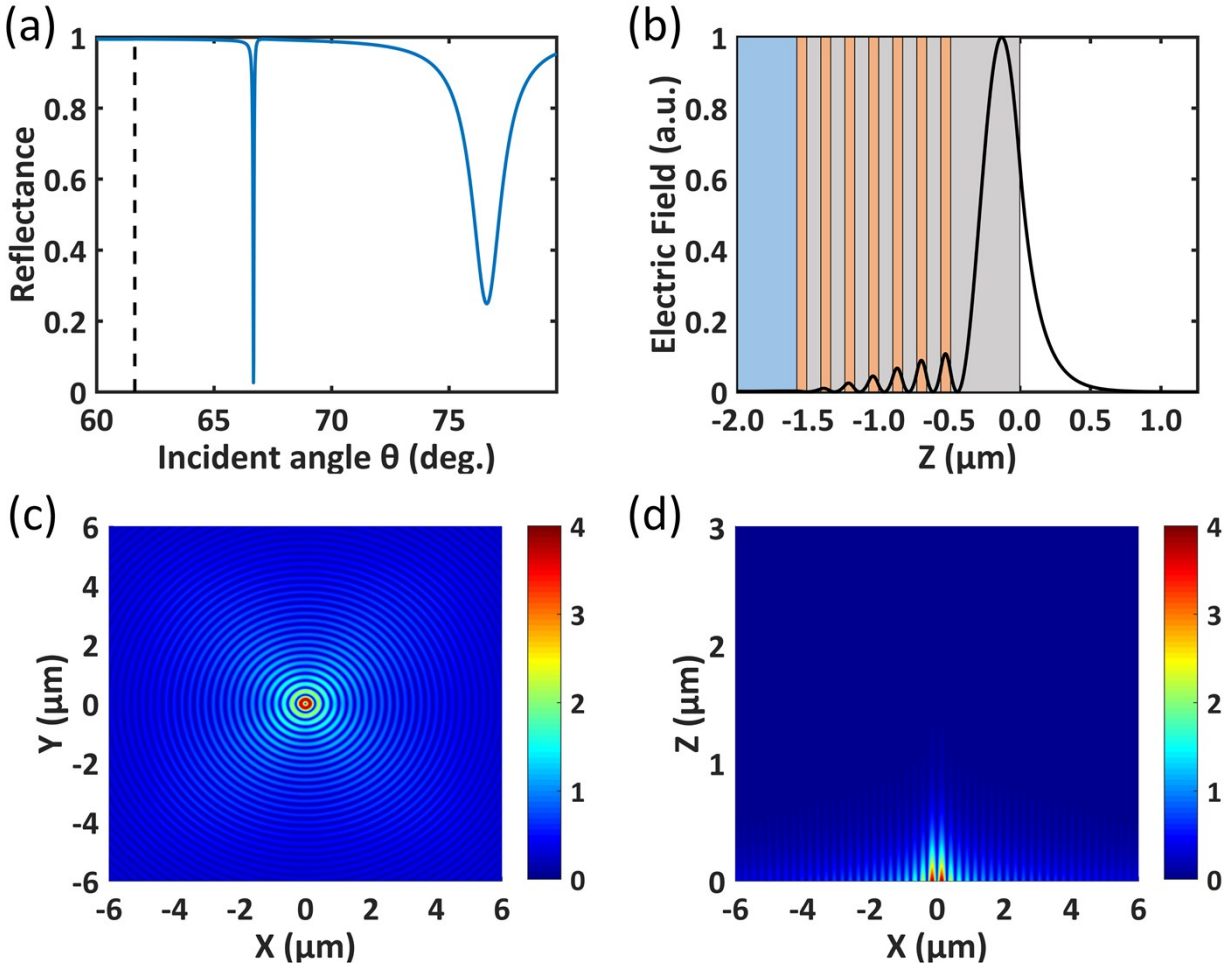

Fig. S5 Numerical simulations of the electric field distributions of the focused BSWs without the gold particle on the dielectric multilayer. The incident wavelength is 671 nm and the incident laser beam has transverse-electric (TE) polarization. (a) Calculated reflectance from the dielectric multilayer vs. angle of incidence, where the black dashed line denotes the critical angle between the glass substrate and the water. (b) Electric field (|E|) distribution in the dielectric multilayer with the angle of incidence fixed at the dip (66.68°) shown in the reflectance curve in (a). Electric field distributions on the horizontal *X*-*Y* plane (c) and on the vertical *X*-*Z* plane (d). The *X*-*Y* plane is located 10 nm above the water/multilayer interface and the *X*-*Z* plane is located at *Y* = 0.